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# Chapter 2

## Alternatives Analysis

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**Chapter 2** presents the alternatives analysis. It introduces the range of reasonable alternatives developed to meet the study purpose and needs and the USACE's basic project purpose. It identifies those alternatives retained or dismissed from more detailed study and the reasons for their retention or dismissal.

Details of the alternatives identification, development, analysis, and screening process are available in the MaineDOT's *Transportation Improvement Strategies and Alternatives Analysis Technical Memorandum and U.S. Army Corps of Engineers Highway Methodology Phase I Submission*, October 2003. This publication is available on study website on the "Resources" page ([www.i395-rt9-study.com](http://www.i395-rt9-study.com)).

From 2001 to 2011, the MaineDOT and the FHWA conceptually designed and analyzed the No-Build Alternative and more than 70 build alternatives that could potentially satisfy the study purpose and needs and the USACE basic project purpose (exhibit 2.1). In conceptually designing and analyzing alternatives, the MaineDOT and the FHWA consulted with regulatory and resource agencies at the state and federal level, local officials, special-interest groups, and the public. At the end of the process of identifying, developing, analyzing, and screening alternatives, four alternatives, including the No-Build Alternative, were retained for further consideration and detailed study.

### 2.1 Maine Sensible Transportation Policy Act Analysis

The STPA applies to significant highway projects in Maine, which are defined as projects that increase capacity by constructing one or more through-travel lanes, a highway at a new location, and a bridge at a new location. The STPA recognizes that there are

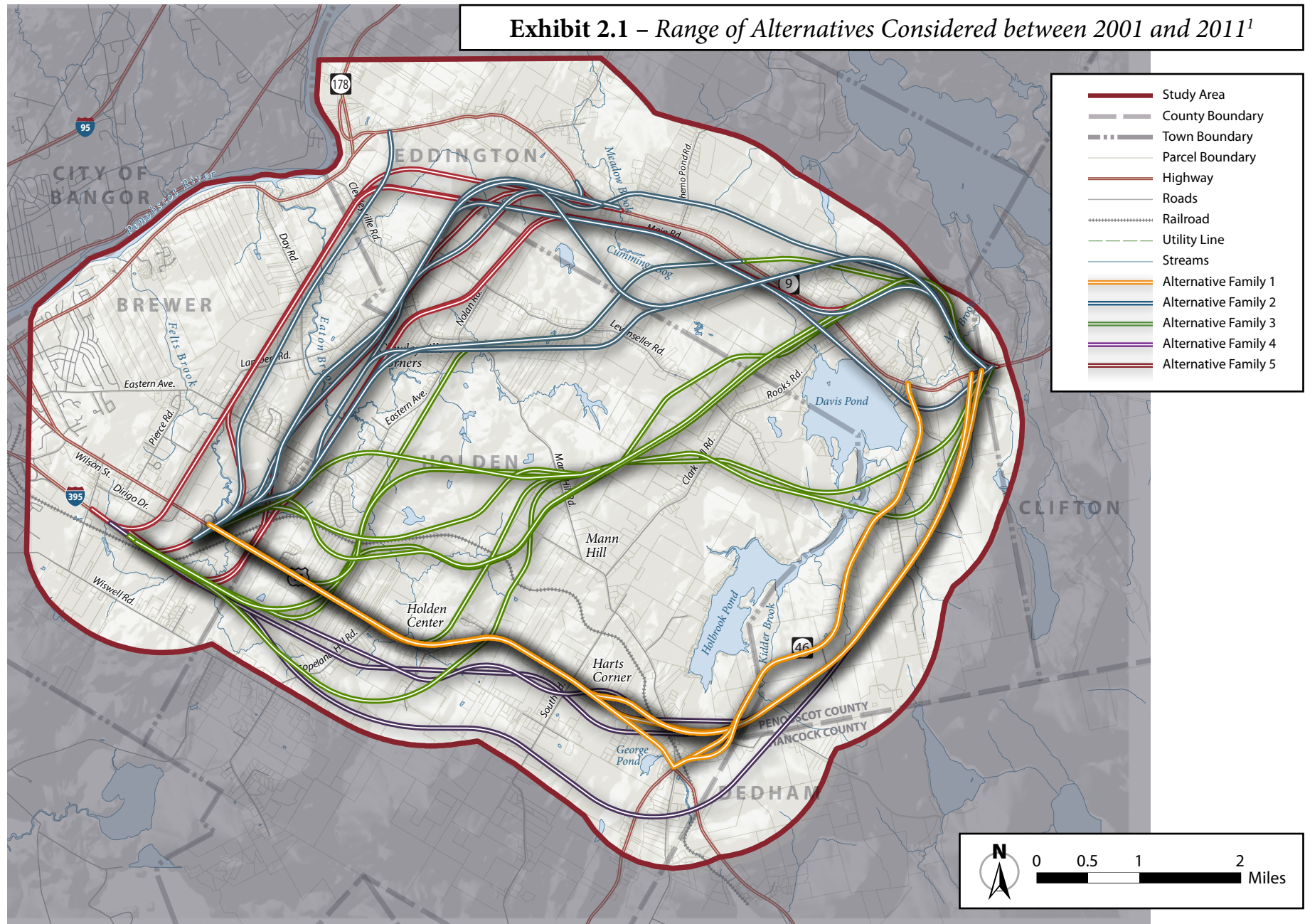
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#### Chapter Contents

- 2.1 Maine Sensible Transportation Policy Act Analysis
- 2.2 Alternatives Identification, Development, and Analysis Process
- 2.3 Range of Reasonable Alternatives Retained for Further Consideration
- 2.4 Other Activities Necessary to Construct the Preferred Alternative and Estimated Construction Cost
- 2.5 Next Steps If a Build Alternative Is to Be Constructed
- 2.6 Most Important Differences among the Alternatives to Be Considered in Decision Making

## 2 • I-395/Route 9 Transportation Study Environmental Impact Statement

Exhibit 2.1 – Range of Alternatives Considered between 2001 and 2011<sup>1</sup>



<sup>1</sup> Note: Alternative alignments shown here have been grouped into families. For a detailed discussion of each family, please refer to Appendix C

benefits and costs (i.e., financial, energy, and environmental) associated with transportation improvements and provides policies and management strategies for the analysis of those issues. This rule requires the MaineDOT to consider available and future modes of transportation and to minimize the effects of transportation on public health, air quality, water quality, land use, and other natural resources.

Modes other than highway improvements were considered but dismissed, given the study's purpose and needs. To improve the quality and quantity of traffic flow, improvements to the existing highways through Transportation Systems Management (TSM) and Travel Demand Management (TDM) were considered.

### 2.1.1 Transportation Systems Management

TSM consists of low-impact highway and intersection geometric improvements, as well as operational strategies, that improve traffic flow through an area. Whether implemented separately or in combination with TDM strategies, TSM improvements may reduce or delay the need for improvements and upgrades that would be necessary if no action were taken.

The TSM alternative consisted of increasing the size and capacity of the Route 9/46 intersection (exhibit 2.2). This intersection was conceptually designed to

**Exhibit 2.2 – Route 9 and 46 Intersection Traffic**

Intersection Route 9 & Route 46	1998 PM DHV No Build			2010 PM DHV No Build			2035 PM DHV No Build		
	Volume	Movement Delay Per Vehicle Delay (sec.)	Movement Level of Service (LOS)	Volume	Movement Delay Per Vehicle Delay (sec.)	Movement Level of Service (LOS)	Volume	Movement Delay Per Vehicle Delay (sec.)	Movement Level of Service (LOS)
<b>Rte 9 EB Thru</b>	199	5.5	A	241	6.3	A	266	7.7	A
<b>Rte 9 EB Right</b>	22	4.5	A	23	5.7	A	56	7.0	A
<b>Rte 9 WB Left</b>	63	8.8	A	107	10.0	B	385	17.5	C
<b>Rte 9 WB Thru</b>	167	5.6	A	221	7.7	A	210	16.4	C
<b>Rte 46 NB Left</b>	25	9.1	A	23	12.2	B	59	126.3	F
<b>Rte 46 NB Right</b>	76	5.6	A	112	6.5	A	406	118.7	F

have additional through-travel and turn lanes. The improvements to this intersection could be accomplished within the existing rights-of-way of Route 9 and Route 46 with no impact to the natural and social features adjacent to the intersection. The MaineDOT is committed to improving the intersection of Route 9 and Route 46; given the future need and the limited scope of the improvements to the intersection, the improvements will be added to future work plans for MaineDOT.

The TSM alternative was dismissed from further consideration because it would not satisfy the study's purpose and would not meet the system-linkage and traffic-congestion needs because it would not improve the traffic congestion and quality of traffic flow on



Route 1A. It is not practicable as it does not meet the overall project purpose. To improve the traffic congestion and quality of traffic flow on Route 1A to generally acceptable levels, physical improvements beyond the scope of TSM would be required.

### ***2.1.2 Travel Demand Management***

TDM consists of strategies to reduce demand for travel during periods of peak traffic flow through an area. TDM strategies normally attempt to accomplish one of two goals:

- remove vehicle trips from the highway network or
- shift trips from periods of high traffic demand to periods of low traffic demand

TDM strategies for removing vehicle trips from highways include ride-sharing programs and improvements to transit networks. Strategies to shift traffic from periods of high demand to periods of low demand include programs such as encouraging employers to offer their employees flexible work hours.

The TDM alternative consisted of briefly considering the major employers in the region and further opportunities to institute and expand ride-sharing programs. The TDM alternative was focused on the Route 1A corridor. The TDM alternative did not consider

the Route 9 corridor in detail because it does not have a concentration of major employers or a high concentration of commuter traffic during peak periods.

TDM strategies work best in areas with a high concentration of commuter traffic during defined peak periods. Most traffic congestion in the study area is caused by increased heavy truck and automobile traffic—often with an origin or destination outside the study area and region—and a lack of system linkage.

The TDM alternative was dismissed from further consideration because TDM strategies are unavailable and they would not satisfy the study's purpose and would not meet the system-linkage and traffic-congestion needs because it would not improve the traffic congestion and quality of traffic flow on Route 1A. It is not practicable in that it does not meet the overall project purpose. To improve the traffic congestion and quality of traffic flow on Route 1A to generally acceptable levels, physical improvements beyond the scope of TDM would be required.

## **2.2 Alternatives Identification, Development, and Analysis Process**

Alternatives were identified, developed, and analyzed in accordance with requirements of the NEPA and Section 404 of the CWA. The NEPA requires the MaineDOT and the FHWA to consider the impacts



of an action on the environment and to disclose those impacts in a public decision-making process.

Alternatives generally should be discussed at a comparable level of detail. Although the No-Build Alternative (generally consisting of maintenance and short-term minor improvements) might not seem reasonable for satisfying the study purpose and needs, it must always be included in the analysis with its consequences fully developed. The No-Build Alternative serves two purposes: (1) it may be a reasonable alternative, especially for situations in which the impacts are great and the need is relatively minor; and (2) it is a baseline against which other alternatives can be compared.

Section 404 of the CWA regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Section 404 requires a permit from the USACE before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from regulation (e.g., certain farming and forestry activities).

Under Section 404, no discharge of dredged or fill material into waters of the United States may be permitted if (1) a practicable alternative exists that is less damaging to the aquatic environment, or (2) the nation's waters would be significantly degraded. To be granted a permit, the project must show that it has, to the extent practicable:

**Practicable** may be defined as “available and capable of being done after considering cost, existing technology, and logistics in light of the overall project purpose.”

The regulations implementing the NEPA (40 CFR 1502.14) require that the lead agencies:

- a. Rigorously explore and objectively evaluate all reasonable alternatives and, for alternatives that were eliminated from detailed study, briefly discuss the reasons for their elimination.
- b. Devote substantial treatment to each alternative considered in detail, including the proposed action, so that reviewers may evaluate their comparative merits.
- c. Include reasonable alternatives not within the jurisdiction of the lead agency
- d. Include the alternative of no action.
- e. Identify the agency's preferred alternative or alternatives, if one or more exists, in the DEIS and identify such alternative in the FEIS, unless another law prohibits the expression of such a preference.
- f. Include appropriate mitigation measures not already included in the proposed action or alternatives.

*Wetlands subject to Section 404 can be defined as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”*

## **2 • I-395/Route 9 Transportation Study Environmental Impact Statement**

- taken steps to avoid waters and wetlands impacts
- minimized potential impacts on waters and wetlands
- provided compensation for remaining unavoidable impacts

### ***2.2.1 Initial Screening***

The first step in the alternatives development process was to establish the study purpose and needs (i.e., the transportation problems warranting identification of reasonable alternatives). Concurrently, the MaineDOT and the FHWA compiled an inventory of the natural, socioeconomic, and cultural resources of the study area (MaineDOT, 2003). Using this information, the MaineDOT and the FHWA, with assistance from the PAC and the public, identified a wide range of potential 1,000-foot-wide corridors for alternatives that appeared to satisfy the purpose and needs of the study and were practicable, while avoiding and minimizing impacts to people and resources. The logical termini of the build alternatives were identified and defined to consist of (1) I-395 near Route 1A and (2) the portion of Route 9 in the study area.

In May 2001, the MaineDOT and the FHWA, with public and PAC assistance, identified potential corridors for alternatives using low-level, high-resolution aerial photography and mapping of the land use, social features, and natural resources of the study area.

The MaineDOT and the FHWA compiled and refined the suggested corridors into 45 alternatives. These initial 45 alternatives fit into the following four broad “families”:

- **Family 1: The Upgrade Alternatives.** Widening and other improvements to Route 1A (from I-395 to Route 46) and Route 46 (from Route 1A to Route 9) approximately 10 miles long. Although one upgrade alternative was initially considered, six upgrade and five partial-upgrade alternatives ultimately were considered.
- **Family 2: The Northern Alternatives.** Alternatives that began at the I-395/Route 1A interchange and generally proceeded in a northerly direction to connect with Route 9. These alternatives were five to 10 miles in length, depending on the distance on Route 9 used as part of the alternative. Twelve alternatives in this family were ultimately studied.
- **Family 3: The Central Alternatives.** Alternatives that began at or near the I-395/Route 1A interchange and generally proceeded north and east through the study area to Route 9 east of Route 46. These alternatives were seven to 11 miles in length, depending on the distance on Route 9 used as part of the alternative. Due to natural resources and an attempt to minimize

the impact to them, these “central” alternatives merged in a common area in the center of the study area north of Mann Hill Road. The MaineDOT created a “match line” at that point, with the central alternatives branching to the east and west of it, creating components 3A through 3K; the components were then combined to form alternatives. The six components on the western side of the match line (i.e., 3A through 3F) matched the four components on the east side (i.e., 3G through 3J), which in turn connected to Route 9. One component, 3K, extended the central alternatives bypassing East Eddington to the north and connected to Route 9 east of Route 46. Using all possible combinations of the six western components, the four eastern components, and component 3K, 36 possible central alternatives were initially created. Five other alternatives (for a total of 41) in this family were ultimately developed by modifying some of the initial 36 alternatives.

- **Family 4: The Southern Alternatives.** Alternatives that began near the I-395/Route 1A interchange and that were south of Route 1A and east of Route 46. These alternatives paralleled Routes 1A and 46 and intersected Route 9 in East Eddington. These alternatives were approximately 11 miles in length. Four alternatives

The preliminary alternatives analysis and screening was performed in accordance with the USACE—New England Division’s *The Highway Methodology Workbook* to identify and document potential impacts generated by construction of those alternatives (USACE, 1995). Potential impacts were based on the limits of cut and fill necessary to construct, operate, and maintain a four-lane highway with two travel lanes in each direction and a divided median within an approximate 250-foot-wide right-of-way. The preliminary alternatives analysis quantified impacts to the following:

- Wetlands
- Hydric soils (for the purposes of this analysis, hydric soils were assumed to be wetlands)
- Surface waters and water crossings with the potential to support anadromous fish (i.e., saltwater fish that return to freshwater streams and rivers to spawn)
- Wildlife habitat
- Notable wildlife habitat (i.e., threatened and endangered species habitat, deer-wintering areas, Maine Natural Areas Program Data, inland waterfowl and wading bird habitat)
- Surface impacts over significant groundwater aquifers
- Surface impacts over high-yield aquifers
- Floodplains
- Community wells
- Active farmland, prime farmland soils, and soils of statewide importance
- Areas of potential hazardous waste
- Commercial and residential areas
- Other land (e.g., transportation, recreation, education)
- Residential and commercial displacements
- Residences within 500 and 1,000 feet
- Archeological areas
- Historic resources listed on or potentially eligible for listing on the National Register of Historic Places



## **2 • I-395/Route 9 Transportation Study Environmental Impact Statement**

The engineering feasibility of each alternative was considered as part of the preliminary alternatives analysis. In addition to the ability to satisfy the design criteria, the following were quantified for each alternative:

- Length
- Bridges (the number and total length of bridges)
- Amount of cut, fill, and total earthwork required (in millions of cubic yards)
- Deepest cut (in feet)
- Deepest fill (in feet)
- Number of roadway and railway crossings
- Average grade (in percent)
- Average curvature (in degrees)

were identified and considered: 4A, 4B, 4C, and 4D.

The MaineDOT conceptually designed and refined alternatives within the 1,000-foot-wide corridors.

To reduce the number of alternatives identified and conceptually designed to a reasonable range, the MaineDOT and the FHWA sought to identify one alternative from each family to be studied in detail. The decision of whether to dismiss or retain alternatives for further analysis was based on their ability to satisfy the study purpose and needs, results of the preliminary impacts

analysis, and consideration of overall engineering feasibility. If more than one alternative in each family fully satisfied the study purpose and needs and was practicable, the alternative was selected based on potential impacts to the features and resources. Alternatives that were more environmentally damaging than others were dismissed from further consideration and alternatives that were the least environmentally damaging were retained for further consideration.

In June 2001, the MaineDOT and the FHWA, using results of the preliminary impacts analysis, dismissed from further consideration 37 of the initial 45

alternatives. The MaineDOT and the FHWA retained the alternative from each family that was the least environmentally damaging to features and resources. In Family 3, the Central Alternatives, no single alternative clearly emerged as having the least impacts; therefore, the MaineDOT and the FHWA chose four that were least environmentally damaging relative to the other Central Alternatives.

The MaineDOT and the FHWA presented the results of the initial alternatives development and screening to attendees at their interagency coordination meetings on eight occasions (chapter 4.2).

The following eight alternatives were retained after the initial screening (the alternatives in Family 5 had not been identified at this time) (exhibit 2.3):

- No-Build Alternative
- Alternative 1-1
- Alternative 2B
- Alternative 3AI
- Alternative 3AIK
- Alternative 3EI
- Alternative 3EIK
- Alternative 4B

**Exhibit 2.3 – Alternatives Remaining after Initial Screening Process (June 2001)**

### ***2.2.2 Continued Development and Screening***

Following the initial screening from June 2001 through September 2003, members of the PAC, the City of Brewer, the towns of Holden and Eddington, and the public suggested potential additional alternatives and modifications of other alternatives. The MaineDOT and the FHWA, with input from the cooperating agencies, continued to develop and screen the suggested alternatives along with the eight alternatives retained for further consideration. They presented screening results to the PAC and the public at 13 PAC meetings, one public meeting, and meetings with representatives of the city of Brewer and the towns of Holden and Eddington (chapter 4.3.1).

Family 4 was dismissed from further consideration because other alternatives were less environmentally damaging (e.g., extensive earthwork, impacts to wetlands, and substantial impacts to Camp Roosevelt Boy Scout Reservation).

In June 2004, alternatives were identified and developed parallel to the utility easements with the Bangor Hydro-Electric Company transmission lines. This family of alternatives, which start with the number 5, began at or near the I-395/Route 1A interchange and largely paralleled the electric transmission lines in the City of Brewer and the towns of Holden and Eddington. This family of alternatives consisted of

four alternatives approximately 11 miles long. These alternatives were believed to have fewer impacts to wetlands than Family 3 alternatives because the land use had already been disturbed through the construction of power lines.

The process of identifying, developing, and screening alternatives or modifying alternatives continued. In January 2008, the following seven alternatives were preliminarily identified for further consideration and development and detailed study (exhibit 2.4):

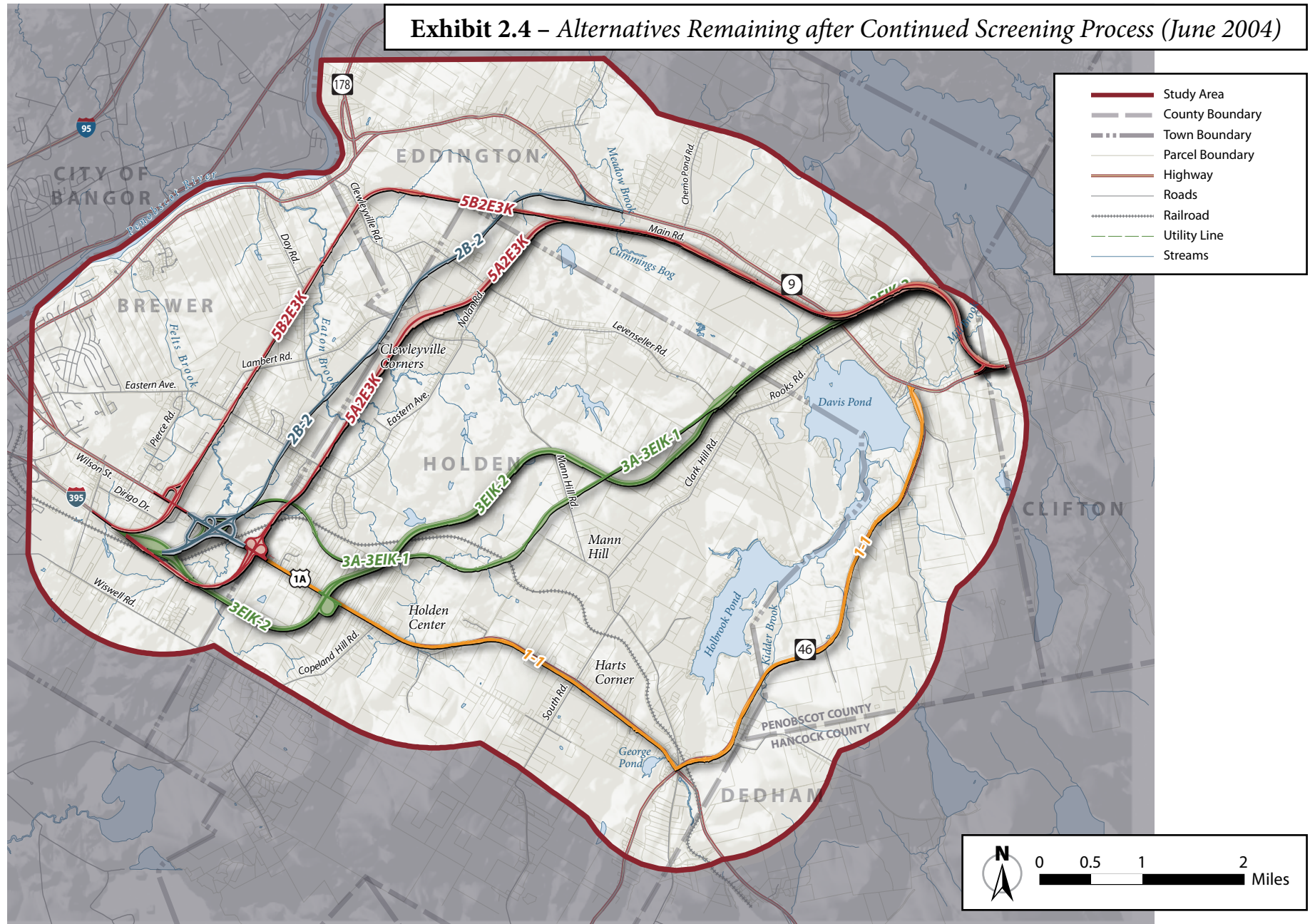
- No-Build Alternative
- Alternative 1-1
- Alternative 2B-2
- Alternative 3A-3EIK-1
- Alternative 3EIK-2
- Alternative 5A2E3K
- Alternative 5B2E3K

In 2008, the MaineDOT and the FHWA updated the inventory of natural, socioeconomic, and cultural resources in the study area (MaineDOT, 2008d); revised the conceptual designs of the build alternatives; and performed additional scoping with the public and with federal and state regulatory and resource agencies (Chapter 4).

In a continuing effort to avoid and minimize adverse impacts, the conceptual design of the build alternatives



Exhibit 2.4 – Alternatives Remaining after Continued Screening Process (June 2004)



## **2 • I-395/Route 9 Transportation Study Environmental Impact Statement**

retained at the conclusion of the preliminary development and screening process was reconsidered in light of the updated inventory of natural, socioeconomic, and cultural resources in the study area. Refinements to the locations and conceptual design of the build alternatives were made using information from the updated inventory of features.

Additional scoping with the public and with federal and state regulatory and resource agencies was performed in June 2008. Six “connectors” (i.e., a highway connecting to another highway) were identified, developed, and analyzed between the three westernmost build alternatives retained at the end of the preliminary development and screening process.

### **2.2.2.1 Analysis of Connectors**

In a continued effort to avoid and minimize adverse impacts in December 2008, six connectors between the three western most build alternatives were identified, conceptually designed, and analyzed at the beginning of the phase of considering alternatives in detail (exhibit 2.5). One connector for Alternative 5B2E3K was identified, conceptually designed, and analyzed. Five connectors between Alternatives 2B-2 and 5A2E3K were identified, conceptually designed, and analyzed, resulting in 12 additional alternatives that were considered. The connectors and the resultant alternatives were conceptually designed and analyzed to the same

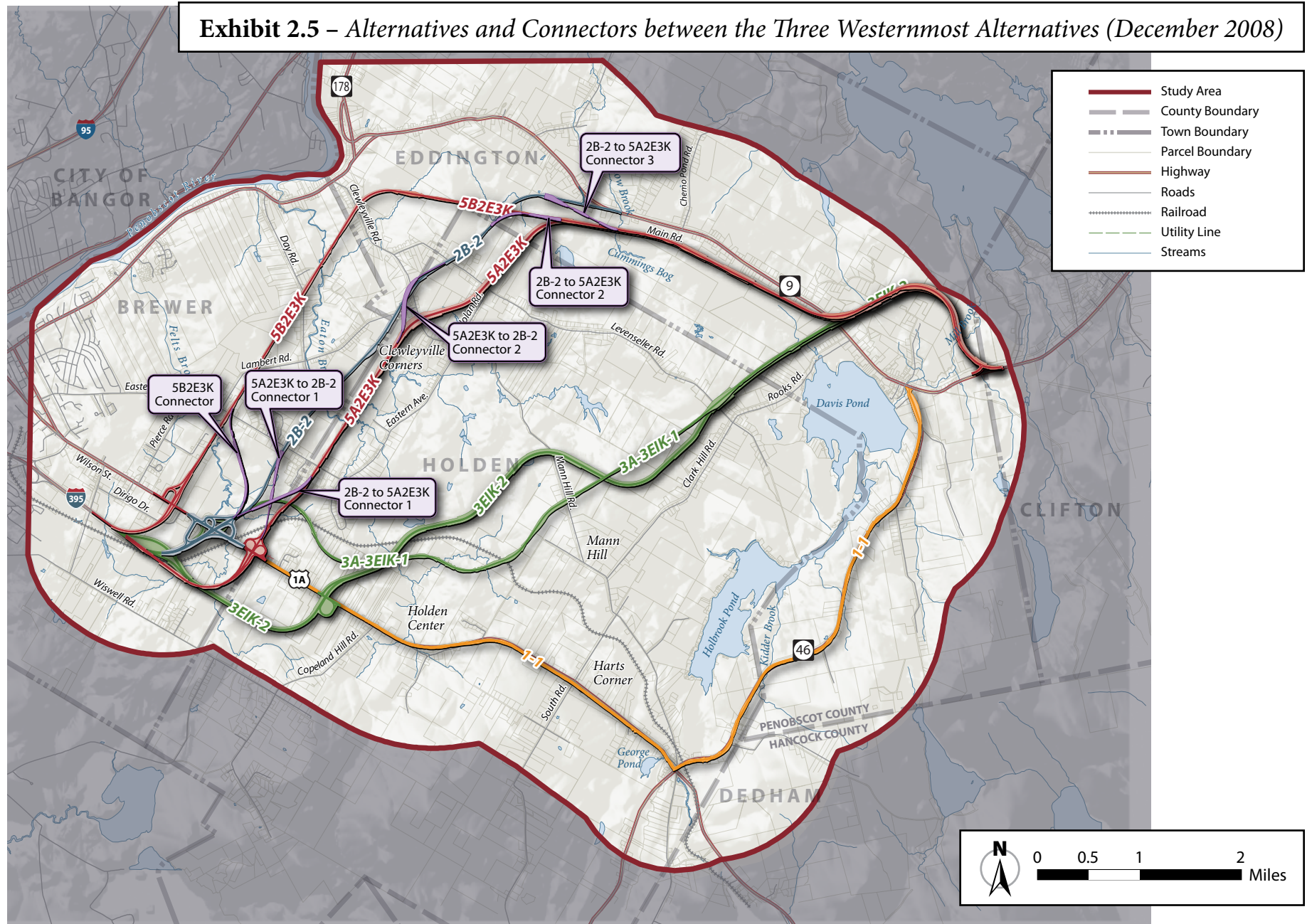
level of detail as the other build alternatives (exhibit 2.6).

For Alternative 5B2E3K, one connector was considered. It used the existing I-395 interchange with Route 1A and replaced the section of Alternative 5B2E3K between I-395 and Eastern Avenue. This connector would reduce impacts to wetlands and result in fewer displacements of commercial businesses and residences. After considering this connector, Alternative 5B2E3K was modified to create Alternative 5B2E3K-1. Alternative 5B2E3K was dismissed from further consideration because it was substantially more environmentally damaging to wetlands and more displacements of commercial businesses and residences than Alternative 5B2E3K-1.

Five connectors between Alternatives 2B-2 and 5A2E3K were identified and developed resulting in 12 additional alternatives for consideration. Six of these alternatives resulted from connecting Alternative 2B-2 to Alternative 5A2E3K near I-395; the six others resulted from connecting Alternative 5A2E3K to Alternative 2B-2 near Route 9. The alternatives that resulted from connecting Alternative 2B-2 to Alternative 5A2E3K were more environmentally damaging to wetlands and more residential displacements than Alternatives 2B-2 and 5A2E3K and were dismissed from further consideration.



Exhibit 2.5 – Alternatives and Connectors between the Three Westernmost Alternatives (December 2008)





## 2 • I-395/Route 9 Transportation Study Environmental Impact Statement

**Exhibit 2.6 – Connectors Analyzed and Impacts to Select Features**

	<i>Design Features</i>	<i>Wetlands (acres)</i>	<i>Streams (feet)</i>	<i>Floodplains (acres)</i>	<i>Displacements</i>	<i>Conclusion</i>
<b>Alternative 5B2E3K</b>	Requires a new interchange with the existing I-395 interchange or construction of a new interchange with Rt. 1A	56	2,350	9	11 residences, Showcase Homes, Wilson Street Holdings Property, and Weathervane Restaurant	Dismissed: More Environmentally Damaging
<b>Alternative 5B2E3K Connector</b>	Three bridges 300 feet long would be required to span Felts Brook	49	2,275	9	9 residences	Dismissed: More Environmentally Damaging
<b>5A2E3K</b>	Two bridges crossing the rail corridor; requires a new interchange with Rt. 1A or interchange with I-395	60	2,065	5	12 residences, Mitchell's, Maine's Military Supply, Brookfield Estates Phase I 8 lots, Phase II	Dismissed: More Environmentally Damaging
<b>5A2E3K to 2B-2 Connector 1</b>	Two bridges crossing the rail corridor; requires a new interchange with Rt. 1A or interchange with I-395	30	1,540	6	15 residences, Brewer Fence Company, Eden Pure Heaters, Mitchell's Landscaping & Garden Center, and Town 'N Country Apartments	Retained: Among Least Environmentally Damaging
<b>5A2E3K to 2B-2 Connector 2</b>	Two bridges crossing the rail corridor; requires a new interchange with Rt. 1A or interchange with I-395; parallels utility corridor	26	1,740	8	5 residences, Mitchell's, Maine's Military Supply, Brookfield Estates Phase I 8 lots and Phase II	Dismissed: More Environmentally Damaging
<b>5A2E3K to 2B-2 via Connector 1 to 2B-2 to 5A2E3K via Connector 2</b>	Two bridges crossing the rail corridor; requires a new interchange with Rt. 1A or interchange with I-395; connects to 5A2E3K paralleling Rt. 9 by 4.5 miles	50	2,120	8	11 residences, Mitchell's, Maine's Military Supply, Beech Ridge development	Dismissed: More Environmentally Damaging
<b>5A2E3K to 2B-2 via Connector 1 to 2B-2 to 5A2E3K via Connector 3</b>	Two bridges crossing the rail corridor; requires a new interchange with Rt. 1A or interchange with I-395; connects to 5A2E3K paralleling Rt. by 9 4.5 miles	48	2,300	6	11 residences, Mitchell's, Maine's Military Supply, Beech Ridge development	Dismissed: More Environmentally Damaging
<b>5A2E3K to 2B-2 via Connector 2 to 2B-2 to 5A2E3K via Connector 2</b>	Connects to 5A2E3K paralleling Rt. 9 lengthening 2B-2 by 4.5 miles; alignment along utility corridor	48	2,330	6	12 residences, Mitchell's, Maine's Military Supply, Brookfield Estates Phase I – 8 lots and Phase II	Dismissed: More Environmentally Damaging

*Note: Direct impacts are based on the conceptual design of a two-lane highway.*

**Exhibit 2.6 – Connectors Analyzed and Impacts to Select Features (continued)**

	Design Features	Wetlands (acres)	Streams (feet)	Floodplains (acres)	Displacements	Conclusion
5A2E3K to 2B-2 via Connector 2 to 2B-2 to 5A2E3K via Connector 3	Connects to 5A2E3K paralleling Rt. 9 lengthening 2B-2 by 4.5 miles; alignment along utility corridor	45	2,500	8	12 residences, Mitchell's, Maine's Military Supply, Brookfield Estates Phase I – 8 lots and Phase II	Dismissed: More Environmentally Damaging
2B-2	Uses existing interchange with Rt. 1A in a modified form	28	1,460	10	8 residences	Retained: Among Least Environmentally Damaging
2B-2 to 5A2E3K Connector 1	Connects to 5A2E3K paralleling Rt. 9 by 4.3 miles	54	2,600	17	11 residences; Brookfield Estates Phase I – 8 lots and Phase II	Dismissed: More Environmentally Damaging
2B-2 to 5A2E3K Connector 2	Allows use of existing interchange with Rt. 1A with modifications; no crossing state-owned rail corridor; connects to alignment along existing utility corridor	60	2,010	16	10 residences; Beech Ridge development	Dismissed: More Environmentally Damaging
2B-2 to 5A2E3K Connector 3	Connects to 5A2E3K paralleling Rt. 9 by 4.3 miles	57	2,420	15	11 residences; Beech Ridge development	Dismissed: More Environmentally Damaging
2B-2 to 5A2E3K via Connector 1 to 5A2E3K to 2B-2 via Connector 2	Uses existing interchange with Rt. 1A with modifications; connects to alignment along utility corridor	29	1,690	18	6 residences; Brookfield Estates Phase I – 8 lots and Phase II	Dismissed: More Environmentally Damaging
2B-2 to 5A2E3K via Connector 1 to 5A2E3K to 2B-2 via Connector 2 to 2B-2 to 5A2E3K via Connector 2	Uses existing interchange with Rt. 1A with modifications; connects to alignment along utility corridor	50	2,270	15	12 residences; Brookfield Estates Phase I development – 8 lots and Phase II	Dismissed: More Environmentally Damaging
2B-2 to 5A2E3K via Connector 1 to 5A2E3K to 2B-2 via Connector 2 to 2B-2 to 5A2E3K via Connector 3	Uses existing interchange with Rt. 1A with modifications; connects to alignment along utility corridor	48	2,465	19	12 residences; Brookfield Estates Phase I development – 8 lots and Phase II	Dismissed: More Environmentally Damaging

*Note: Direct impacts are based on the conceptual design of a two-lane highway.*

## **2 • I-395/Route 9 Transportation Study Environmental Impact Statement**

Of the six alternatives that resulted from connecting Alternative 5A2E3K to Alternative 2B-2, two were retained for further consideration because they resulted in comparable or less impact to wetlands and fewer residential displacements than Alternatives 2B-2 and 5A2E3K. These alternatives were named Alternative 5A2B-2 and Alternative 5A2E3K-2.

In May 2009, a meeting took place with the federal and state regulatory and resource agencies to review the range of alternatives being considered. It was agreed that Alternatives 1-1 and 3A-3EIK-1 should be dismissed from further consideration. Alternative 1-1 was dismissed from further consideration because it would not further the study's purpose related to the NHS or satisfy the system-linkage need because it would not provide a high-speed, controlled-access connection between I-395 and Route 9. Alternative 1-1 would satisfy the USACE's basic purpose statement. Alternative 3A-3EIK-1 was dismissed from further consideration because it was more environmentally damaging than Alternative 3EIK-2.

*A controlled-access highway provides limited points of vehicle access; access is permitted only at interchanges and intersections.*

### **2.2.2.2 Evaluation of Route 9**

In December 2009, the system-linkage need and Route 9 were reexamined in greater detail. Specifically, Route 9 was reexamined to understand more fully if it could reasonably accommodate the future traffic volumes that were foreseeable within the next 20 years.

The following factors were considered in examining Route 9 in greater detail:

- study purpose and the need for improved regional system linkage
- the geometry and capacity of Route 9
- existing and future traffic congestion (measured in terms of operating speeds and the volume of existing and future traffic compared to the capacity of the highway) and safety
- expectations and concerns of community leaders and the public
- origins and destinations of motorists
- areas of congestion
- system continuity
- land use and community features
- growth trends
- natural resources

After careful consideration of those factors, the MaineDOT determined that Route 9, with the exception of the sections approaching the intersection of Routes 9 and 46 where the posted speed limit is lower than other segments of Route 9, could reasonably accommodate future traffic volumes for the next 20 years without additional improvements beyond the existing right-of-way (exhibit 2.7).



**Exhibit 2.7 – DHV, v/c Ratio, Average Travel Speed and LOS for Route 9**

<i>Analysis Year</i>	<i>DHV</i>	<i>v/c Ratio</i>	<i>Average Travel Speed (mph)</i>	<i>LOS Rural Two-Lane Road</i>
<b>Route 9 East of Route 178</b>				
<b>1998 No Build</b>	641	0.27	41.2	D
<b>2006 No Build</b>	629	0.26	41.3	D
<b>2035 No Build</b>	873	0.36	39.5	E
<b>Route 9 East of Route 46</b>				
<b>1998 No Build</b>	505	0.20	43.9	D
<b>2006 No Build</b>	573	0.23	43.5	D
<b>2035 No Build</b>	1,267	0.46	39.3	E

Two alternatives – 2B-2 and 5A2B-2 – connect with Route 9 near the Eddington School approximately 4.2 miles to the west of Route 46. When these two alternatives were considered with a bypass of the intersection of Routes 9 and 46 similar to the other build alternatives, two additional build alternatives were created: 2B-2-K and 5A2B-2-K.

### 2.2.2.3 Continued Coordination with the Federal Cooperating Agencies

In September and December 2010, meetings with the federal cooperating agencies took place, the purpose of which was to solidify the range of alternatives to be considered in detail.

The MaineDOT continued its analysis of the Routes 9/46 intersection and concluded that the build alternatives, including those that use portions of Route 9, would improve the quality of traffic flow at the

intersection of Routes 9 and 46 and other physically less intrusive improvements (e.g. as adding turn lanes), could be made to the intersection that would further improve the quality of traffic flow at the intersection. For these reasons, the MaineDOT and the FHWA dismissed alternatives that bypassed the intersection of Routes 9 and 46 to the north in favor of further consideration of alternatives that use Route 9.

The MaineDOT, the FHWA, and the federal cooperating agencies further considered the remaining build alternatives and concluded, although available and practicable, Alternatives 3EIK-2, 5A2E3K, 5A2E3K-2, and 5B2E3k-1 were more environmentally damaging than other build alternatives and were dismissed from further consideration (see Appendix C). Alternative 5B2B-2 was created.

### **2.2.2.4 Alternatives Retained for Further Consideration and Detailed Study**

The following four alternatives were retained for further consideration and detailed study:

- No-Build Alternative
- Alternative 2B-2
- Alternative 5A2B-2
- Alternative 5B2B-2

The cooperating agencies concurred with this range of alternatives to be retained for detailed analysis (see Appendix C). Drawings of the build alternatives are shown in Appendix D.

## **2.3 Range of Reasonable Alternatives Retained for Further Consideration**

Four alternatives, including the No-Build Alternative, were retained for further consideration and analyzed in detail (exhibit 2.8).

The build alternatives would be controlled-access highways and were conceptually designed using the MaineDOT design criteria for freeways (exhibit 2.9). Two lanes would be constructed and used for two-way travel within an appropriate 200-foot-wide right-of-way (exhibit 2.10).

After careful consideration of the range of alternatives developed in response to the study's purpose and needs and in coordination with its cooperating and participating agencies, the MaineDOT and the FHWA identified Alternative 2B-2 as their preferred alternative because the MaineDOT and the FHWA believe it best satisfies the study purpose and needs, would fulfill their statutory mission and responsibilities, and has the least adverse environmental impact.

As part of the review of this EIS, the MaineDOT and the FHWA invite comments on their decision identifying Alternative 2B-2 as its preferred alternative.

The final selection of an alternative will not be made until comments on this draft EIS and from the public hearing have been received and analyzed by the MaineDOT and FHWA, and comments have been received in response to the USACE's public notice; all reasonable alternatives are under consideration and a decision will be made after the alternatives' impacts and comments on the draft EIS and from the public hearing have been fully evaluated.

### **2.3.1 No-Build Alternative**

The No-Build Alternative proposes that there be no new construction or major reconstruction of the transportation system in the study area; regular maintenance to I-395 and Routes 1A, 46, and 9 would be